

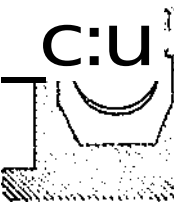
These local centers of combustion arc* due to the excess air supply. In proportion as they cool, the gases drop lower and lower, uniformly heating all of the tubes, which for this reason work in a satisfactory manner.

The Cleveland iron tube air* heater, which is not so widely known, likewise works upon the *(Iwvndrnft principle*, (Fig- 70).

The disappearance of the numerous typos of iron tube air heaters and the survival of the *Bcwege.x* and Cleveland designs supplies a very good example of the importance of giving the correct direction to the circulation of the gases in furnaces.

VI. STEAM BOILERS

The constructors of steam boilers very rarely consider the rational distribution of the hot, gases. Those defects are particularly frequent in the most recently designed types of water-tube boilers, an well as in the older designs. The lack of knowledge of the laws governing the flow of the heated, gases explains



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pletely.

(Note, by Englwh trantttatfir. -The
ahHolute neglect and dinregard of tho
most elementary laws of phynicn is
not corifinod to tho circulation of the
heated gawK, hut, is gronnly violated
in the water ctintulution an well.)*

In reality it is not necessary
to have any baffling nor walls.
The hot gases have a natural
tendency to flow in such a way
that
the entire heating surface of
tho boiler will be bathed by
thorn
in a very uniform and regular
manner. Without going into
details,